INTRODUCTION, STUDY RATIONALE AND METHODS

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GEOGRAPHICAL AND PHYSICAL SETTING OF THE BALDWIN HILLS

The Baldwin Hills lie in the western part of the Los Angeles Basin, approximately 11 km (7 mi) southwest of the Los Angeles Civic Center and 5 km (3 mi) northeast of Los Angeles International Airport (Fig. 1). The lowlands of the Los Angeles Basin separate the Baldwin Hills from the nearest areas of natural upland open space, which include the Santa Monica Mountains approximately 10 km (6 mi) to the north and northwest, and Griffith Park some 14 km (9 mi) to the northeast of the Hills. The nearest portion of the Angeles National Forest (San Gabriel Mountains) is about 27 km (17 mi) to the north of the Baldwin Hills (Fig. 2).

The Baldwin Hills are dominated by two north-south trending ridges which slope steeply to the northwest, north, and northeast, and more gently toward the south. The highest point is approximately 155 m (511 feet). The natural topography of the Baldwin Hills has been altered extensively by grading during oil field development, residential development and construction of the Baldwin Hills Dam, now filled and landscaped (Fig. 3). Located near the northern terminus of the Newport/Inglewood Fault, the Baldwin Hills geologically consist of a thick layer of Tertiary sedimentary bedrock overlying an igneous-metamorphic rock base. The steep scarp face present near the entrance to the Kenneth Hahn State Recreation Area (KHSRA) exposes the main fracture of the 15 km (9 mi) long Newport/Inglewood Fault. The area's soils are well-drained, consisting of loam and clay loam. Although they are mostly formed in place by the weathering of the sedimentary rock, these residual soils have been partially to completely removed or covered by grading and erosion. Additional detail on the topography and geology of the Baldwin Hills can be found in a report by R. Ramirez and J. Shuttleworth for the County of Los Angeles Department of Parks and Recreation (County of Los Angeles 1982).

The north and west flanks of the Hills are drained by Ballona Creek which empties into the Pacific Ocean in Playa del Rey, 6.5 km (4 mi) west of the Baldwin Hills (Fig. 1). The southern portion of the hills is drained by Centinela Creek, the concrete channel of which now drains into Ballona Creek just upstream from Lincoln Blvd. in Playa del Rey (Fig. 1). Both Ballona and Centinela creeks are now completely channelized in concrete. A highly disturbed remnant coastal salt marsh exists in the Ballona Wetlands adjacent to the Ballona Creek Channel in Playa del Rey (Schreiber 1981; Fig. 4). Wooded upland areas approach the Baldwin Hills only to within about 10-11 km (6-7 mi) to the north (Santa Monica Mountains) and 14-16 km (9-10 mi) to the northeast (e.g. Griffith Park, and the walnut woodlands of Elysian Park north of downtown Los Angeles and Debs Regional Park in Highland Park). The Palos Verdes Peninsula, 24 km (15 mi) to the south of the Baldwin Hills, is similar in being dominated

by low scrub and in its isolation from upland habitats. At least some degree of prior connectivity between the Baldwin Hills and Palos Verdes Peninsula is suggested by Mattoni's (1993) assertion that a "sea of sage scrub" habitat occurred in loam and clay soils surrounding the dune habitats of the southern part of Santa Monica Bay.

LAND USE AND HABITAT CHANGES IN AND AROUND THE BALDWIN HILLS

From the Baldwin Hills, the surrounding lowlands of the Los Angeles Basin stretch north and east toward the Santa Monica and San Gabriel mountain ranges. The Basin was thought to be formerly covered with low scrub and grassland, interrupted along floodplains with riparian woodlands and extensive freshwater wetlands (Gumprecht 1999). Küchler (1977) considered coastal sage scrub to be the natural vegetation association of the entire Los Angeles Basin, but it seems likely that much of this habitat was too low and open to harbor many upland, chaparral species. Prior to development and urbanization, the area around the mouth of Ballona Creek ("Del Rey") was a series of extensive wetlands that stretched inland from and north of a series of large coastal dunes. This large dune system stretched from the Del Rey area to the Palos Verdes Peninsula (Mattoni 1993).

For some periods (most recently from 1815 to 1825) the Los Angeles River flowed westward from what is now downtown Los Angeles and skirted the north side of the Baldwin Hills, flowing through the Ballona Creek channel and emptying into the Pacific Ocean in the Del Rey (now Marina del Rey) area (Gumprecht 1999). A series of "cienegas" to the north of the Baldwin Hills held extensive freshwater marshes; these were completely drained and filled in the course of agricultural and urban development through the 1800s and early 1900s. Through the years, agricultural development, grazing, urbanization, oil development and flood control efforts have effectively eliminated all other natural habitats within the Los Angeles Basin.

There is little published documentation detailing the historical natural habitats specific to the Baldwin Hills. Photographs taken in the early 1900s (UCLA Air Photo Archives, Los Angeles Library) show hillsides dominated by grazed grassland and low scrub (probably predominantly California sagebrush, *Artemisia californica*). Historical accounts of the area indicate that much of the Baldwin Hills had been incorporated into the Rancho la Cienega o Paso de la Tijera, a land grant deeded to the Sanchez family in 1843, and into two other ranches, the Rancho Rincon de Los Bueyes and Rancho La Ballona. These ranches and the surrounding lowlands were probably heavily impacted by agricultural development as the rancho was used as sheep pasture since the mid to late 1880s. The exotic annuals, mustards and wild radish were apparently well established at this time as historical descriptions of the area make reference to "the wild mustard that grew nearly 15 feet high" in the hills. By 1875, E. J. "Lucky" Baldwin had acquired the old rancho and introduced cattle to the Hills. Oil was discovered under Baldwin's ownership; by 1924 about 156 wells were established in the Baldwin Hills, producing over 25 million gallons of oil by that time (Pipkin & Nash 1967).

Watercourses such as Ballona Creek were channelized in the early 1930s, and freshwater marshes (cienegas) were filled or drained by this time. Coastal marshes at the mouth of Ballona Creek were adversely impacted by a variety of human activities, culminating in the construction of Marina del Rey in 1960-62 and the resulting elimination of all but a portion of the Del Rey (Ballona) wetlands.

The intense urbanization that has occurred throughout the Los Angeles Basin has now isolated the Baldwin Hills from other existing natural habitats. The primary activities responsible for the modification or elimination of natural habitat from the Hills include grazing and farming, oil field development and extraction, reservoir construction, and residential development. As urbanization of the Baldwin Hills intensified, wild fire suppression practices that attend such urban development also modified the natural landscape by altering the natural fire regime of the coastal scrub and grasslands.

STUDY RATIONALE AND METHODS

The Baldwin Hills represent a unique and extensive area of natural habitat and other open space within the heavily urbanized Los Angeles Basin. Public open space, such as that within the Baldwin Hills, is at a premium in the region. Nearly one million people live within an 8 km (5 mi) radius of the Baldwin Hills. With a ratio of one acre of parkland to every 1000 residents, the area has one of the highest deficits of public park lands in California (Los Angeles Times 2000). Interest in the Baldwin Hills has been heightened by this deficit in and around the City of Los Angeles, and by concerns about loss and fragmentation of coastal sage scrub and chaparral habitats and their associated biota on the urbanized coastal slope of southern California.

The Natural History Museum of Los Angeles County (LACM), located in Exposition Park only 4 km (2.5 mi) east of the Baldwin Hills, assembled a team of biologists to investigate the current and historical biota of the Baldwin Hills; the results of this investigation constitute this report. The team assembled for this project consisted of staff and collaborators of the Research and Collections Division of the Natural History Museum:

Plants: Valerie Anderson, Marymount College, Palos Verdes Campus

Arthropods: Louis La Pierre, University of California, Los Angeles

Reptiles and Amphibians: Kent Beaman, Herpetology, Natural History Museum

Birds: Kimball L. Garrett, Ornithology, Natural History Museum

Mammals: James P. Dines and David S. Janiger, Mammalogy, Natural History Museum

Project Coordinator: Kathy C. Molina, Ornithology,
Natural History Museum

Project Oversight: Dr. John E. Heyning, Deputy Director, Research and Collections, Natural History Museum

To provide an overview of the currently existing native plant and animal communities of the Baldwin Hills, we performed qualitative surveys in the natural and semi-natural areas of the Hills. Because a significant portion of these natural areas are privately owned, our surveys were largely limited to those areas presently lying within the public domain, primarily the Kenneth Hahn State Recreation Area (Fig. 5). To present a more complete evaluation of the natural vegetation of the Baldwin Hills, we used high resolution (1-ft.) color aerial images of the area (Airphoto USA, Phoenix, AZ), taken in August 2000, to supplement our ground-based vegetation assessment. In general, fieldwork was conducted from March through November, 2000. We reviewed various museum databases, environmental reports, publications, and personal field notes for historical information, although these sources often lacked sufficient detail to facilitate comparisons between the historical and current datasets.

The particular field survey methodologies used by each discipline varied and are detailed separately in each of the taxonomic sections that follow in this report. These sections detail the results of our surveys of plants, arthropods, reptiles and amphibians, birds, and mammals. Ecological themes emerging from the individual systematic disciplines are summarized and expanded upon in a concluding chapter, which also provides recommendations concerning habitat protection and restoration.

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Location of the Baldwin Hills

Map produced by GreenInfo Network.
February 28, 2001.

GreenInfo Network

FIGURE 2 BALDWIN HILLS PARK PLANNING PROJECT

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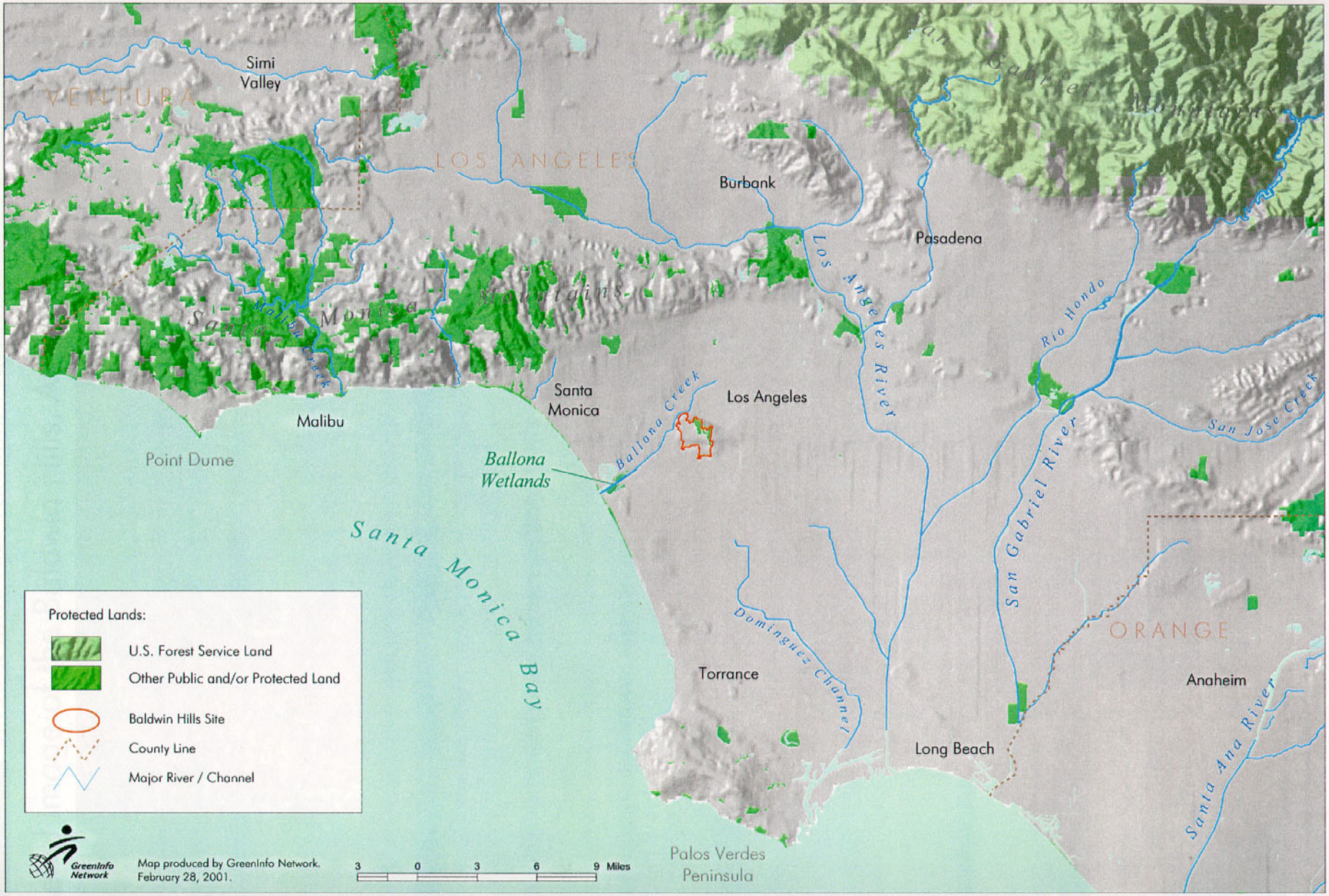
NATURAL HISTORY MUSEUM OF LOS ANGELES COUNTY

Natural Open Space in the Los Angeles Basin



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Aerial Image of the Baldwin Hills, August 2000

Orthophoto provided by AirPhoto USA, August 2000,

Map produced by GreenInfo Network.
February 28, 2001.

GreenInfo Network

FIGURE 4 BALDWIN HILLS PARK PLANNING PROJECT

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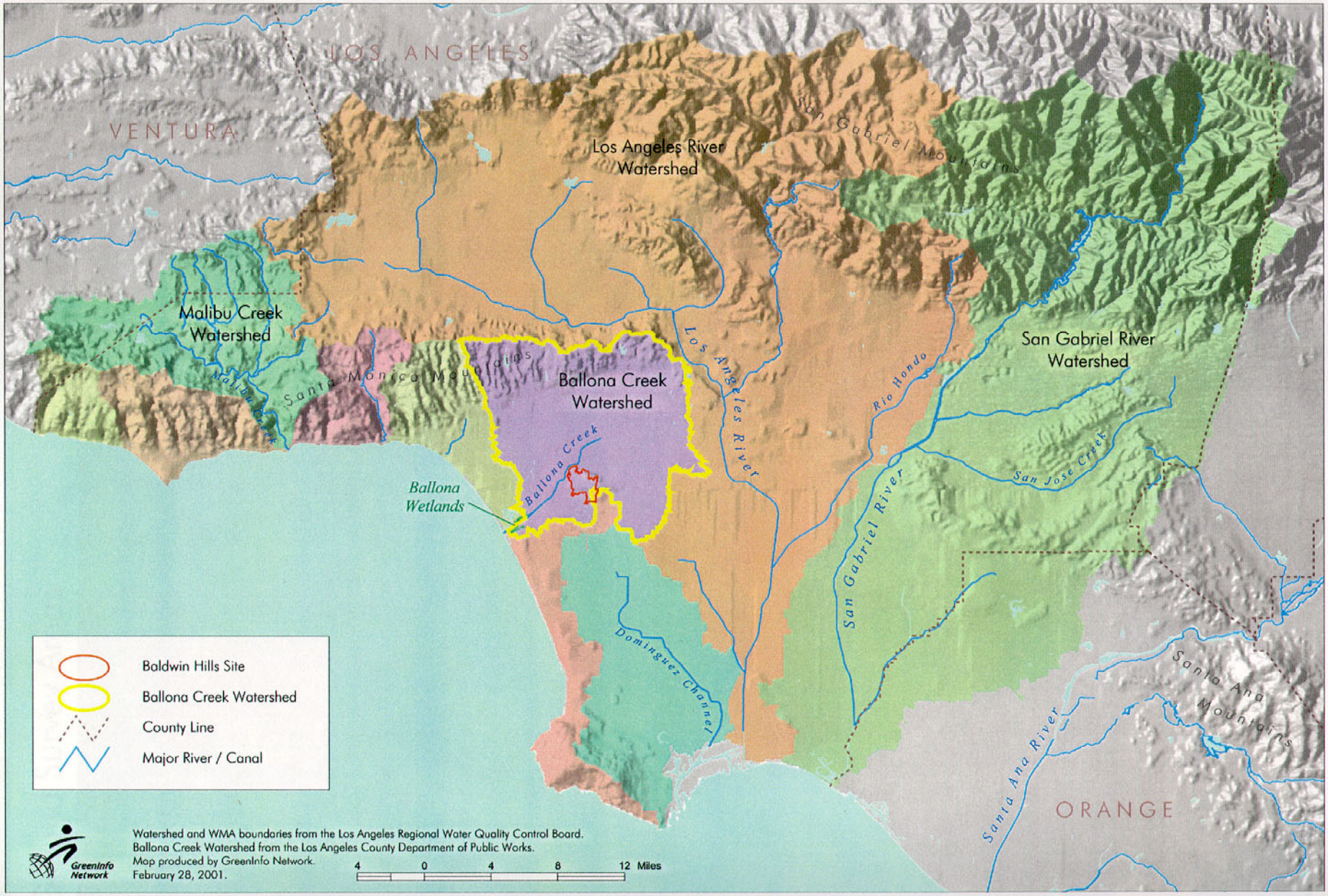
The Baldwin Hills and the Ballona Creek Watershed



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Ground Survey Areas

Map produced by GreenInfo Network.
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